



PMN2016P1

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SANITIZED SUBMISSION

Form Approved. O.M.B. Nos. 2070-0012 and 2070-0038

U.S. ENVIRONMENTAL PROTECTION AGENCY		AGENCY USE ONLY											
 EPA	PREMANUFACTURE NOTICE		Date of receipt: 10/26/2016										
	FOR NEW CHEMICAL SUBSTANCES												
When completed, send this form to:	If sending by Courier: Office of Pollution Prevention and Toxics Document Control Office (7407M) US EPA, 1201 Constitution Ave NW WASHINGTON, D.C. 20460 Contact Numbers: 202-564-8930/8940	If sending by US Mail: Office of Pollution Prevention and Toxics Document Control Office (7407M) US EPA, 1200 Pennsylvania Ave NW WASHINGTON, D.C. 20460	Submission Report Number										
Total Number of Pages	User Fee Payment ID Number		TS Number										
26	25ULI9OJ		007898										
GENERAL INSTRUCTIONS													
<ul style="list-style-type: none">You must provide all information requested in this form to the extent that it is known to or reasonably ascertainable by you. Make reasonable estimates if you do not have actual data.Before you complete this form, you should read the "Instructions Manual for Premanufacture Notification" (the Instructions Manual is available from the Toxic Substances Control Act (TSCA) Information Service by calling 202-554-1404, or faxing 202-554-5603).If a user fee has been remitted for this notice (40 CFR 700.45), indicate in the boxes above the TS-user fee identification number you have generated. Remember, your user fee ID number must also appear on your corresponding fee remittance. For mailing address information see the Help instructions in the e-PMN tool.													
Part I – GENERAL INFORMATION You must provide the currently correct Chemical Abstracts (CA) Name of the new chemical substance, even if you claim the identity as confidential. You may authorize another person to submit chemical identity information for you, but your submission will not be complete and the review will not begin until EPA receives this information. A letter in support of your submission should reference your TS user fee identification number. For all Section 5 Notice submissions (paper or electronic) you must submit an original notice including all test data; if you claimed any information as confidential, an original sanitized copy must also be submitted.		TEST DATA AND OTHER DATA You are required to submit all test data in your possession or control and to provide a description of all other data known to or reasonably ascertainable by you, if these data are related to the health and environmental effects on the manufacture, processing, distribution in commerce, use, or disposal of the new chemical substance. Standard literature citations may be submitted for data in the open scientific literature. <u>Complete test data (written in English), not summaries of data, must be submitted if they do not appear in the open literature.</u> You should clearly identify whether test data is on the substance or on an analog. Also, the chemical composition of the tested material should be characterized. Following are examples of test data and other data. Data should be submitted according to the requirements of §720.50 of the Premanufacture Notification Rule (40 CFR Part 720). <div style="text-align: center; padding: 5px;">Test Data (Check Below any included in this notice)</div> <table style="width: 100%;"><tr><td style="width: 50%;"><input type="checkbox"/> Environmental fate data</td><td style="width: 50%;"><input checked="" type="checkbox"/> Other Data</td></tr><tr><td><input checked="" type="checkbox"/> Health effects data</td><td><input type="checkbox"/> Risk Assessments</td></tr><tr><td><input type="checkbox"/> Environmental effects data</td><td><input type="checkbox"/> Structure/activity relationships</td></tr><tr><td><input checked="" type="checkbox"/> Physical/Chemical Properties (A physical and chemical properties worksheet is located on the last page of this form.)</td><td></td></tr><tr><td><input type="checkbox"/> Test data not in the possession or control of the submitter</td><td></td></tr></table>		<input type="checkbox"/> Environmental fate data	<input checked="" type="checkbox"/> Other Data	<input checked="" type="checkbox"/> Health effects data	<input type="checkbox"/> Risk Assessments	<input type="checkbox"/> Environmental effects data	<input type="checkbox"/> Structure/activity relationships	<input checked="" type="checkbox"/> Physical/Chemical Properties (A physical and chemical properties worksheet is located on the last page of this form.)		<input type="checkbox"/> Test data not in the possession or control of the submitter	
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<input checked="" type="checkbox"/> Physical/Chemical Properties (A physical and chemical properties worksheet is located on the last page of this form.)													
<input type="checkbox"/> Test data not in the possession or control of the submitter													
Part II – HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE If there are several manufacture, processing, or use operations to be described in Part II, sections A and B of this notice, reproduce the sections as needed.		<div style="text-align: center; padding: 5px;">TYPE OF NOTICE (Check Only One)</div> <table style="width: 100%;"><tr><td><input checked="" type="checkbox"/> PMN (Premanufacture Notice)</td></tr><tr><td><input type="checkbox"/> SNUN (Significant New Use Notice)</td></tr><tr><td><input type="checkbox"/> TMEA (Test Marketing Exemption Application)</td></tr><tr><td><input type="checkbox"/> LVE (Low Volume Exemption) @ 40 CFR 723.50(c)(1)</td></tr><tr><td><input type="checkbox"/> LOREX (Low Release/Low Exposure Exemption) @ 40 CFR 723.50(c)(2)</td></tr><tr><td><input type="checkbox"/> LVE Modification</td></tr><tr><td><input type="checkbox"/> LOREX Modification</td></tr><tr><td><input type="checkbox"/> Mock Submission</td></tr><tr><td><input type="checkbox"/> Mark (X) if pending Letter of Support</td></tr></table>		<input checked="" type="checkbox"/> PMN (Premanufacture Notice)	<input type="checkbox"/> SNUN (Significant New Use Notice)	<input type="checkbox"/> TMEA (Test Marketing Exemption Application)	<input type="checkbox"/> LVE (Low Volume Exemption) @ 40 CFR 723.50(c)(1)	<input type="checkbox"/> LOREX (Low Release/Low Exposure Exemption) @ 40 CFR 723.50(c)(2)	<input type="checkbox"/> LVE Modification	<input type="checkbox"/> LOREX Modification	<input type="checkbox"/> Mock Submission	<input type="checkbox"/> Mark (X) if pending Letter of Support	
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Part III – LIST OF ATTACHMENTS For paper submissions, attach additional sheets if there is not enough space to answer a question fully. Label each continuation sheet with the corresponding section heading. In Part III, list these attachments, any test data or other data and any optional information included in the notice.													
OPTIONAL INFORMATION You may include any information that you want EPA to consider in evaluating the new substance. On page 11 of this form, space has been provided for you to describe pollution prevention and recycling information you may have regarding the new substance. "Binding" boxes are included throughout this form for you to indicate your willingness to be bound to certain statements you make in this section, such as use, production volume, protective equipment . . . The intention is to reduce delays that routinely accompany the development of consent orders or Significant New Use Rules. Checking a "binding" box in a PMN does not by itself prohibit the submitter from later deviating from the information (except chemical identity) reported in the form; however, in the case of exemption applications (such as TMEA, LVE, LOREX) certain information provided in such notifications is binding on the submitter when the Agency approves the exemption application, especially if the production volume "binding" box is chosen in a LVE.													
CONFIDENTIALITY CLAIMS You may claim any information in this notice as confidential. To assert a claim on the form, mark (X) the confidential box next to the information that you claim as confidential. To assert a claim in an attachment, circle or bracket the information you claim as confidential. <u>If you claim information in the notices as confidential, you must also provide a sanitized version of the notice, (including attachments).</u> For additional instructions on claiming information as confidential, read the Instructions Manual.		<div style="text-align: center; padding: 5px;">IS THIS A CONSOLIDATED PMN (Y/N)?</div> <table style="width: 100%;"><tr><td style="width: 50%; text-align: center;">N</td><td style="width: 50%;"># of chemicals or polymers (Prenotice Communication # required, enter # on p. 3).</td></tr><tr><td style="text-align: center;">1</td><td></td></tr><tr><td style="text-align: center;"><input checked="" type="checkbox"/></td><td>Mark (X) if any information in this notice is claimed as confidential.</td></tr></table>		N	# of chemicals or polymers (Prenotice Communication # required, enter # on p. 3).	1		<input checked="" type="checkbox"/>	Mark (X) if any information in this notice is claimed as confidential.				
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1													
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The public reporting and recordkeeping burden for this collection of information is estimated to average 93 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed EPA Form 7710-25 to this address.

CERTIFICATION -- A printed copy of this signature page, with original signature, must be submitted with CD or paper submission.

I hereby certify to the best of my knowledge and belief that all information entered on this form is complete and accurate. I further certify that, pursuant to 15 U.S.C. § 2613(c), for all claims for protection for any confidential information made with this submission, all information submitted to substantiate such claims is true and correct, and that it is true and correct that the person submitting the claim has:

- (i) taken reasonable measures to protect the confidentiality of the information;
- (ii) determined that the information is not required to be disclosed or otherwise made available to the public under any other Federal law
- (iii) a reasonable basis to conclude that disclosure of the information is likely to cause substantial harm to the competitive position of the person; and
- (iv) a reasonable basis to believe that the information is not readily discoverable through reverse engineering.

Any knowing and willful misrepresentation is subject to criminal penalty pursuant to 18 U.S.C. § 1001.

Additional Certification Statements:

If you are submitting a PMN, Intermediate PMN, Consolidated PMN, or SNUN, check the following **user fee** certification statement that applies:



The Company named in Part I, Section A has remitted the fee of \$2500 specified in 40 CFR 700.45(b), or



The Company named in Part I, Section A has remitted the fee of \$1000 for an Intermediate PMN (defined @ 40 CFR 700.43) in accordance with 40 CFR 700.45(b), or



The Company named in Part I Section A is a small business concern under 40 CFR 700.43 and has remitted a fee of \$100 in accordance with 40 CFR 700.45(b).

If you are submitting a **Low Volume Exemption (LVE)** application in accordance with 40 CFR 723.50(c)(1) or a **Low Release and Low Exposure Exemption (LoRex)** application in accordance with 40 CFR 723.50(c)(2), check the following certification statements:



The manufacturer submitting this notice intends to manufacture or import the new chemical substance for commercial purposes, other than in small quantities solely for research and development, under the terms of 40 CFR 723.50.



The manufacturer is familiar with the terms of this section and will comply with those terms; and



The new chemical substance for which the notice is submitted meets all applicable exemption conditions.



If this application is for an LVE in accordance with 40 CFR 723.50(c)(1), the manufacturer intends to commence manufacture of the exempted substance for commercial purposes within 1 year of the date of the expiration of the 30 day review period.

Confidential

Signature and title of
Authorized Official (Original
Signature Required)

XXX

Date

XXX





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Part I -- GENERAL INFORMATION

Section A – SUBMITTER IDENTIFICATION									
Mark (X) the "Confidential" box next to any subsection you claim as confidential									
1a. Person Submitting Notice (in U.S.)								Confidential	
Name of Authorized Official		(first) XXX				(last) XXX			
Position		XXX							
Company		XXX							
Mailing Address (number & street)		XXX							
City					State			Postal Code	XXX
email		XXX							
b. Agent (if Applicable)								Confidential	
Name of Authorized Official		(first)				(last)			
Position									
Company									
Mailing Address (number & street)									
City					State			Postal Code	
e-mail						Telephone (include area code)			
c. Joint Submitter (if applicable)								Confidential	
If you are submitting this notice as part of a joint submission, mark (X)								<input type="checkbox"/>	
Name of Authorized Official		(first)				(last)			
Position									
Company									
Mailing Address (number & street)									
City					State			Postal Code	
e-mail						Telephone (include area code)			
2. Technical Contact (in U.S.)								Confidential	
Name of Authorized Official		(first) XXX				(last) XXX			
Position		XXX							
Company		XXX							
Mailing Address (number & street)		XXX							
City	XXX				State	XXX		Postal Code	XXX
e-mail		XXX				Telephone (include area code)		XXX	
3.	If you have had a prenotice communication (PC) concerning this notice and EPA assigned a PC Number to the notice, enter the number.							Mark (X) if none	Confidential
								<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.	If you previously submitted an exemption application for the chemical substance covered by this notice, enter the exemption number assigned by EPA. If you previously submitted a PMN for this substance enter the PMN number assigned by EPA (i.e. withdrawn or incomplete).	XXX						Mark (X) if none	Confidential
								<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	If you have submitted a notice of Bona fide intent to manufacture or import for the chemical substance covered by this notice, enter the notice number assigned by EPA.	XXX						Mark (X) if none	Confidential
								<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Type of Notice – Mark (X)									
1.	Manufacture Only	<input type="checkbox"/>	2.	Import Only	<input checked="" type="checkbox"/>	3.	Both	<input type="checkbox"/>	
	Binding Option	<input type="checkbox"/>		Binding Option	<input checked="" type="checkbox"/>				



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Continuation Sheet

ID	P3SB1bC2	Field	Part I, Section A, 5. Bona Fide Intent Notice
<p>Bona Fide Intent Notice Number: XXX</p>			



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Part I – GENERAL INFORMATION -- Continued

Section B – CHEMICAL IDENTITY INFORMATION:		You must provide a currently correct Chemical Abstracts (CA) name of the substance based on current CA index nomenclature rules and conventions.	
Mark (X) the "Confidential" box next to any item you claim as confidential			
Complete either item 1 (Class 1 or 2 substances) or 2 (Polymers) as appropriate. Complete all other items.			
If another person will submit chemical identity information for you (for either Item 1 or 2), mark (X) the box at the right. Identify the name, company, and address of that person in a continuation sheet.		<input type="checkbox"/>	
1. Class 1 or 2 chemical substances (for definitions of class 1 and class 2 substances, see the Instructions Manual)		Class 1	Class 2
a. Class of substance - Mark (X)		<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Chemical name (Currently correct Chemical Abstracts (CA) Name that is consistent with TSCA Inventory listings for similar substances. For Class 1 substances a CA Index Name must be provided. For Class 2 substances either a CA Index Name or CA Preferred Name must be provided, which ever is appropriate based on current CA index nomenclature rules and conventions).			<input type="checkbox"/>
1,3,2-dioxathiolane, 2,2-dioxide			
CAS Registry Number (if a number already exists for the substance)		1072-53-3	
c. Please identify which method you used to develop or obtain the specified chemical identity information reported in this notice: (check one).			
Method 1 (CAS Inventory Expert Service - a copy of the Identification report obtained from the CAS Inventory Expert Services must be submitted as an attachment to this notice)		IES Order Number	Method 2 (Other Source)
<input type="checkbox"/>			<input checked="" type="checkbox"/>
Enter Attachment filename for Part I, Section B, 1. c.		Original Document: 3 CAS Registry Lookup Resul... <input type="checkbox"/>	
d. Molecular formula	C2H4O4S <input type="checkbox"/>		
e. For a class 1 substance, provide a complete and correct chemical structure diagram. For a class 2 substance, provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained.		<input type="checkbox"/>	
See Attachment (Original Document: 4 Chemical Structure.pdf)			
Enter Attachment filename for Part I, Section B, 1. e.		<input type="checkbox"/>	



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For a class 2 substance - (1) List the immediate precursor substances with their respective CAS Registry Numbers. (2) Describe the nature of the reaction or process. (3) Indicate the range of composition and the typical composition (where appropriate).

Confidential

e. (1) List the immediate precursor substance names with their respective CAS Registry Numbers.

☐

Enter Attachment filename for Part I, Section B, 1. e. (1)

☐

e. (2) Describe the nature of the reaction or process.

☐

Enter Attachment filename for Part I, Section B, 1. e. (2)

☐

e. (3) Indicate the range of composition and the typical composition (where appropriate).

☐

Enter Attachment filename for Part I, Section B, 1. e. (3)

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Part I -- GENERAL INFORMATION -- Continued

Section B -- CHEMICAL IDENTITY INFORMATION -- Continued

3. Impurities

- (a) - Identify each impurity that may be reasonably anticipated to be present in the chemical substance as manufactured for commercial purpose. Provide the CAS Registry Number if available. If there are unidentified impurities, enter "unidentified."
(b) - Estimate the maximum weight % of each impurity. If there are unidentified impurities, estimate their total weight %.

Impurity (a)	CAS Registry Number (a)	Maximum Percent % (b)	Confidential
Water	7732-18-5	0.05	
Carbonic acid, dimethyl ester	616-38-6	0.1	

Mark (X) this box if the data continues on the next page.

☐

Enter Attachment filename for Part I, Section B, 3.

☐

4. Synonyms - Enter any chemical synonyms for the new chemical identified in subsection 1 or 2.

Ethylene glycol, cyclic sulfate (8CI), Ethylene sulfate (((CH₂O)₂SO₂)) (6CI, 7CI), 1,2-Ethylene sulfate, Ethylene sulfate, NSC 526594,☐

Enter Attachment filename for Part I, Section B, 4.

☐

5. Trade identification - List trade names for the new chemical substance identified in subsection 1 or 2.

ESA, DTD,

☐

Enter Attachment filename for Part I, Section B, 5.

☐

6. Generic chemical name - If you claim chemical identify as confidential, you must provide a generic name for your substance that reveals the specific chemical identity of the new chemical substance to the maximum extent possible. Refer to the TSCA Chemical Substance Inventory, 1985 Edition, Appendix B for guidance on developing generic names.

Enter Attachment filename for Part I, Section B, 6.

7. Byproducts - Describe any byproducts resulting from the manufacture, processing, use, or disposal of the new chemical substance. Provide the CAS Registry Number if available.

Byproduct (1)	CAS Registry Number (2)	Confidential

Mark (X) this box if the data continues on the next page.

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Part I -- GENERAL INFORMATION -- Continued

Section B -- CHEMICAL IDENTITY INFORMATION -- Continued

2. Polymers (For a definition of polymer, see the Instructions Manual.)

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- a. Indicate the number-average weight of the lowest molecular weight composition of the polymer you intend to manufacture. Indicate maximum weight percent of low molecular weight species (not including residual monomers, reactants, or solvents) below 500 and below 1,000 absolute molecular weight of that composition.

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Describe the methods of measurement or the basis for your estimates:

GPC

☐

Other (Specify Below)

☐

Specify Other:

(i) lowest number average molecular weight:

(ii) maximum weight % below 500 molecular weight:

(iii) maximum weight % below 1000 molecular weight:

Enter Attachment filename for Part I, Section B, 2. a.

☐

- b. You must make separate confidentiality claims for monomer or other reactant identity, composition information, and residual information. Mark (X) the "Confidential" box next to any item you claim as confidential

- (1) - Provide the specific chemical name and CAS Registry Number (if a number exists) of each monomer or other reactant used in the manufacture of the polymer.
- (2) - Mark (X) this column if entry in column (1) is confidential.
- (3) - Indicate the typical weight percent of each monomer or other reactant in the polymer.
- (4) - Choose "yes" from drop down menu if you want a monomer or other reactant used at two weight percent or less to be listed as part of the polymer description on the TSCA Chemical Substance Inventory.
- (5) - Mark (X) this column if entries in columns (3) and (4) are confidential.
- (6) - Indicate the maximum weight percent of each monomer or other reactant that may be present as a residual in the polymer as manufactured for commercial purposes.
- (7) - Mark (X) this column if entry in column (6) is confidential.

Monomer or other reactant specific chemical name
(1)CBI
(2)Typical
composition
(3)Include in
identity
(4)CBI
(5)Max
residual
(6)CBI
(7)

CAS Registry Number (1)

CAS Registry Number (1)

CAS Registry Number (1)

CAS Registry Number (1)

CAS Registry Number (1)

Mark (X) this box if the data continues on the next page.

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c. Please identify which method you used to develop or obtain the specified chemical identity information reported in this notice (check one).			CBI
Method 1 (CAS Inventory Expert Service - a copy of the identification report obtained from CAS Inventory Expert Service must be submitted as an attachment to this notice) <input type="checkbox"/>	IES Order Number		Method 2 (other source) <input type="checkbox"/>
Enter Attachment filename for Part I, Section B, 2. c.			<input type="checkbox"/>
d. The currently correct Chemical Abstracts (CA) name for the polymer that is consistent with TSCA Inventory listings for similar polymers.			<input type="checkbox"/>
CAS Registry Number (if a number already exists for the substance)			
e. Provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained.			<input type="checkbox"/>
Enter Attachment filename for Part I, Section B, 2. e.			<input type="checkbox"/>



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Part I -- GENERAL INFORMATION -- Continued

Section C -- PRODUCTION, IMPORT, AND USE INFORMATION:

The information on this page refers to consolidated chemical number(s): ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Mark (X) the "Confidential" box next to any item you claim as confidential.

1. Production volume -- Estimate the **maximum** production volume during the first 12 months of production. Also estimate the maximum production volume for any consecutive 12-month period during the first three years of production. Estimates should be on 100% new chemical substance basis. For a Low Volume Exemption application, if you choose to have your notice reviewed at a lower production volume than 10,000 kg/yr, specify the volume and mark (x) in the binding box. If granted, you are bound to this volume.

Maximum first 12-month production (kg/yr) (100% new chemical substance basis)	Maximum 12-month production (kg/yr) (100% new chemical substance basis)	Confidential	Binding Option Mark (X)
XXX	XXX	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Enter Attachment filename for Part I, Section C, 1.			CBI <input type="checkbox"/>

2. Use Information -- You must make separate confidentiality claims for the description of the category of use, the percent of production volume devoted to each category, the formulation of the new substance, and other use information. Mark (X) the "Confidential" Box next to any item you claim as confidential.

- a. (1) --Describe each intended category of use of the new chemical substance by function and application.
(2) --Mark (X) this column if entry column (1) is confidential business information (CBI).
(3) --Indicate your willingness to have the information provided in column (1) binding.
(4) --Estimate the percent of total production for the first three years devoted to each category of use.
(5) --Mark (X) this column if entry in column (4) is confidential business information (CBI).
(6) --Estimate the percent of the new substance as formulated in mixtures, suspensions, emulsions, solutions, or gels as manufactured for commercial purposes at sites under your control associated with each category of use.
(7) --Mark (X) this column if entry in column (6) is confidential business information (CBI).
(8) --Indicate % of product volume expected for the listed "use" sectors. Mark more than one box if appropriate. Mark (X) to indicate your willingness to have the use type provided in (8) binding.
(9) --Mark (X) this column if entry(ies) in column (8) is (are) confidential business information (CBI).

Category of use (1) (by function and application i.e. a dispersive dye for finishing polyester fibers)	CBI (2)	Binding Option Mark (X) (3)	Prod uction % (4)	CBI (5)	% in Form- ulation (6)	CBI (7)	% of substance expected per use (8)					CBI (9)
							Site- limited	Con- sumer*	Industrial	Com- mercial	Binding Option	
An additive in customized electrolyte formulations for lithium ion batteries.			100.0		XXX	X	0	0	100.0	0		

* If you have identified a "consumer" use, please provide on a continuation sheet a detailed description of the use(s) of this chemical substance in consumer products. In addition include estimates of the concentration of the new chemical substance as expected in consumer products and describe the chemical reactions by which this substance loses its identity in the consumer product.

Mark (X) this box if the data continues on the next page. ☐

- b. Generic use description If you claim any category of use description in subsection 2a as confidential, enter a generic description of that category. Read the Instruction Manual for examples of generic use descriptions.

Enter Attachment filename for Part I, Section C, 2. b.		CBI <input type="checkbox"/>
3. Hazard Information -- Include in the notice a copy of reasonable facsimile of any hazard warning statement, label, material safety data sheet, or other information which will be provided to any person who is reasonably likely to be exposed to this substance regarding protective equipment or practices for the safe handling, transport, use, or disposal of the new substance. List in part III hazard information you include.		Binding Option Mark (X)
Mark (X) this box if you attach hazard information. <input checked="" type="checkbox"/>		<input type="checkbox"/>



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Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE

Section A -- INDUSTRIAL SITES CONTROLLED BY THE SUBMITTER

Mark (X) the "Confidential" box next to any item you claim as confidential

The information on pages 8 and 8a refer to consolidated chemical number(s): ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Complete section A for each type of manufacture, processing, or use operation involving the new chemical substance at industrial sites you control. Importers do not have to complete this section for operations outside the U.S.; however, you may still have reporting requirements if there are further industrial processing or use operations after import. You must describe these operations. See instructions manual

1. Operation description

Confidential

a. Identity -- Enter the identity of the site at which the operation will occur.

Name	XXX			<input checked="" type="checkbox"/>
Site address (number and street)	XXX			
City	XXX	County	XXX	
State	XXX	ZIP code	XXX	

If the same operation will occur at more than one site, enter the number of sites. Identify the additional sites on a continuation sheet, and if any of the sites have significantly different production rates or operations, include all the information requested in this section for those sites as attachments. →

XXX

☒

Mark (X) this box if the data continues on the next page.

☐b. Type --
Mark (X)Manufacturing ☐Processing ☐Use ☒☐

c. Amount and Duration -- Complete 1 or 2 as appropriate

Confidential

1. Batch	Maximum kg/batch (100% new chemical substance)	Hours/batch	Batches/year	<input type="checkbox"/>
	null	null	null	
2. Continuous	Maximum kg/day (100% new chemical substance)	Hours/day	Days/year	<input type="checkbox"/>

d. Process description

Mark (X) to indicate your willingness to have your process description binding.
→☐

- (1) Diagram the major unit operation steps and chemical conversions. Include interim storage and transport containers (specify- e.g. 5 gallon pails, 55 gallon drum, rail car, tank truck, etc.).
- (2) Provide the identity, the approximate weight (by kg/day or kg/batch on a 100% new chemical substance basis), and entry point of all starting materials and feedstocks (including reactants, solvents, catalysts, etc.), and of all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch.).
- (3) Identify by number the points of release, including small or intermittent releases, to the environment of the new chemical substance. If releasing to two media at the same step, assign a second release number for the second medium.

XXX

☒



PMN2016P8A

PMN Page 8a

SANITIZED SUBMISSION

Diagram of the major unit operation steps.	Confidential
	<input type="checkbox"/>
<p>See Attachment Continuation Page</p>	
Enter Attachment filename for Part II, Section A, 1. d.	See Attachment Continuation Page <input type="checkbox"/>



PMN2016P8-1

Continuation Sheet

ID	Field	Process Description
<div>Sanitized Document: 5 Sanitized Process Flow Di...</div> <div>Sanitized Document: 6 Sanitized Processing Desc...</div>		



PMN2016P8-2

Continuation Sheet

ID	Field	Process Description
		Sanitized Document: 5 Sanitized Process Flow Di...
		Sanitized Document: 6 Sanitized Processing Desc...



Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE -- Continued

Section A -- INDUSTRIAL SITES CONTROLLED BY THE SUBMITTER -- Continued

The information on pages 9 and 9a refer to consolidated chemical number(s): ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6**2. Occupational Exposure** -- You must make separate confidentiality claims for the description of worker activity, physical form of the new chemical substance, number of workers exposed, and duration of activity. Mark (X) the "Confidential" box next to any item you claim as confidential.

- (1) -- Describe the activities (i.e. bag dumping, tote filling, unloading drums, sampling, cleaning, etc.) in which workers may be exposed to the substance.
- (2) -- Mark (X) this column if entry in column (1) is confidential business information (CBI).
- (3) -- Describe any protective equipment and engineering controls used to protect workers.
- (4) and (6) -- Indicate your willingness to have the information provided in column (3) or (5) binding.
- (5) -- Indicate the physical form(s) of the new chemical substance (e.g., solid: crystal, granule, powder, or dust) and % new chemical substance (if part of a mixture) at the time of exposure.
- (7) -- Mark (X) this column if entries in columns (3) and (5) are confidential business information (CBI).
- (8) -- Estimate the maximum number of workers involved in each activity for all sites combined.
- (9) -- Mark (X) this column if entry in column (8) is confidential business information (CBI).
- (10) and (11) -- Estimate the maximum duration of the activity for any worker in hours per day and days per year.
- (12) -- Mark (X) this column if entries in columns (10) and (11) are confidential business information (CBI).

Worker activity (i.e., bag dumping, filling drums) (1)	CBI (2)	Protective Equipment/ Engineering Controls (3)	Binding Option Mark (X) (4)	Physical form(s) & % new substance (5)	Binding Option Mark (X) (6)	CBI (7)	# of Workers Exposed (8)	CBI (9)	Maximum Duration		CBI (12)
									Hrs/Day (10)	Days/Yr (11)	
Sampling		See continuation page. id: <P9SA2(3)C1R1>		solid, 100			2		0.5	12	
Miscellaneous Activities Related to Liquid Processing		See continuation page. id: <P9SA2(3)C1R2>		Solid, 100			3		.5	100	
Sampling		Safety glasses, gloves, ESD steel toed shoes		Liquid, 1			3		.33	100	
Filter Media Changeout		Safety glasses, gloves, ESD steel toed boots		Liquid on filter medium, 1			3		.2	50	
Loading into Drums		Safety glasses, gloves, ESD steel toed shoes Local exhaust in booth		liquid solution, 1			3		1	100	
Sampling		Safety glasses, gloves, ESD steel toed shoes Local exhaust in booth		liquid solution, 1			3		.33	100	
Miscellaneous Activities Related to Liquid Processing		Safety glasses, gloves, ESD steel toed shoes Fume hood exhaust		liquid solution, 1			4		2	100	
Miscellaneous Activities Related to Liquid Processing		See continuation page. id: <P9SA2(3)C1R8>		liquid solution, 50			6		.8	100	
Loading into Tank Trucks		See continuation page. id: <P9SA2(3)C1R9>		Liquid Solution, 1			2		3	6	

Mark (X) this box if the data continues on the next page.

Enter Attachment filename for Part II, Section A on the bottom of page 9a.



PMN2016P9-1

SANITIZED SUBMISSION

Continuation Sheet

ID	P9SA2(3)C1R1	Field	Part II, Section A, 2.(3) Prot. Equipment, etc., Row 1
<p>Safety glasses, gloves, ESD steel toed shoes</p> <p>Sampled in a glovebox environment</p>			



PMN2016P9-2

SANITIZED SUBMISSION

Continuation Sheet

ID	P9SA2(3)C1R2	Field	Part II, Section A, 2.(3) Prot. Equipment, etc., Row 2
<p>Safety glasses, gloves, ESD steel toed shoes, tyvek, respirator</p> <p>Local exhaust vent</p>			



PMN2016P9-3

SANITIZED SUBMISSION

Continuation Sheet

ID	P9SA2(3)C1R8	Field	Part II, Section A, 2.(3) Prot. Equipment, etc., Row 8
<p>Safety glasses, gloves, ESD steel toed boots</p> <p>Grounding on waste containers</p>			



PMN2016P9-4

SANITIZED SUBMISSION

Continuation Sheet

ID	P9SA2(3)C1R9	Field	Part II, Section A, 2.(3) Prot. Equipment, etc., Row 9
<p>Safety glasses, gloves, ESD steel toed boots</p> <p>Grounding on truck, isolation valve for spill containment</p>			



PMN Page 9a

3. Environmental Release and Disposal -- You must make separate confidentiality claims for the release number and the amount of the new chemical substance released and other release and disposal information. Mark (X) the "Confidential" box next to each item you claim as confidential.

- (1) -- Enter the number of each release point identified in the process description, part II, section A, subsection 1d(3).
- (2) -- Estimate the amount of the new substance released (a) directly to the environment or (b) into control technology (in kg/day or kg/batch).
- (3) -- Mark (X) this column if entries in columns (1) and (2) are confidential business information (CBI).
- (4) -- Identify the media (stack air, fugitive air (optional-see Instruction Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify)) to which the new substance will be released from that release point.
- (5) -- a. Describe control technology, if any, and control efficiency that will be used to limit the release of the new substance to the environment. For releases disposed of on land, characterize the disposal method and state whether it is approved for disposal of RCRA hazardous waste. On a continuation sheet, for each site describe any additional disposal methods that will be used and whether the waste is subject to secondary or tertiary on-site treatment. b. Estimate the amount released to the environment after control technology (in kg/day).
- (6) -- Mark (X) this column if entries in columns (4) and (5) are confidential business information (CBI).
- (7) -- Identify the destination(s) of releases to water. Please supply NPDES (National Pollutant Discharge Elimination System) numbers for direct discharges or NPDES numbers of the POTW (Publicly Owned Treatment Works). Mark (X) if the POTW name or NPDES # is confidential business information (CBI).

Release Number (1)	Amount of New Substance Released		CBI (3)	Medium of release e.g. Stack air (4)	Control technology and efficiency (you may wish to optionally attach efficiency data)			CBI (6)
	(2a)	(2b)			(5a)	Binding Mark (X)	(5b)	
xxx	xxx	xxx	X	xxx	xxx		xxx	X
xxx	xxx	xxx	X	xxx	xxx		xxx	X
xxx	xxx	xxx	X	xxx	xxx		xxx	X
xxx	xxx	xxx	X	xxx	xxx		xxx	X
xxx	xxx	xxx	X	xxx	xxx		xxx	X
xxx	xxx	xxx	X	xxx	xxx		xxx	X
xxx	xxx	xxx	X	xxx	xxx		xxx	X

Mark (X) this box if the data continues on the next page.

☐

(7) Mark (X) the destination(s) of releases to water.				NPDES#	CBI
<input type="checkbox"/>	POTW--provide name(s)				<input type="checkbox"/>
<input type="checkbox"/>	Navigable waterway- - provide name(s)				<input type="checkbox"/>
<input type="checkbox"/>	Other--Specify				<input type="checkbox"/>

Enter Attachment filename for Part II, Section A.

☐



PMN2016P10

PMN Page 10

SANITIZED SUBMISSION

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE – Continued

Section B -- INDUSTRIAL SITES CONTROLLED BY OTHERS

The information on pages 10 and 10a refer to consolidated chemical number(s): ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

Complete section B for typical processing or use operations involving the new chemical substance at sites you do not control. Importers do not have to complete this section for operations outside the U.S.; however, you must report any processing or use activities after import. See the Instructions Manual. *Complete a separate section B for each type of processing, or use operation involving the new chemical substance.* If the same operation is performed at more than one site describe the typical operation common to these sites. Identify additional sites on a continuation sheet.

1(a). Operation Description -- To claim information in this section as confidential, bracket (e.g. {}) the specific information that you claim as confidential.

- (1) -- Diagram the major unit operation steps and chemical conversions, including interim storage and transport containers (specify - e.g. 5 gallon pails, 55 gallon drums, rail cars, tank trucks, etc). On the diagram, identify by letter and briefly describe each worker activity.
- (2) -- Either in the diagram or in the text field 1(b) below, provide the identity, the approximate weight (by kg/day or kg/batch, on an 100% new chemical substance basis), and entry point of all feedstocks (including reactants, solvents and catalysts, etc) and all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch).
- (3) -- Either in the diagram or in the text field 1(b) below, identify by number the points of release, including small or intermittent releases, to the environment of the new chemical substance.
- (4) -- Please enter the # of sites (remember to identify the locations of these sites on a continuation sheet):

Number of Sites

XXX

Confidential



1(b). (Optional) This space is for a text description to clarify the diagram above.

Confidential



XXX

Enter Attachment filename for Part II, Section B on the bottom of page 10a.





PMN2016P10-1

SANITIZED SUBMISSION

Continuation Sheet

ID	P10SB1(a)(4)1	Field	Part II, Section B, 1(a)(4). Operation Site Locations
<p>XXX</p>			

**2. Worker Exposure/Environmental Release**

- (1) -- From the diagram above, provide the letter for each worker activity. Complete 2-8 for each worker activity described.
- (2) -- Estimate the number of workers exposed for all sites combined.
- (4) -- Estimate the typical duration of exposure per worker in (a) hours per day and (b) days per year.
- (6) -- Describe physical form of exposure and % new chemical substance (if in mixture), and any protective equipment and engineering controls, if any, used to protect workers.
- (7) -- Estimate the percent of the new substance as formulated when packaged or used as a final product.
- (9) -- From the process diagram above, enter the number of each release point. Complete 9-13 for each release point identified.
- (10) -- Estimate the amount of the new substance released (a) directly to the environment or (b) into control technology to the environment (in kg/day or kg/batch).
- (12) -- Describe media of release i.e. stack air, fugitive air (optional-see Instructions Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify) and control technology, if any, that will be used to limit the release of the new substance to the environment.
- (14) -- Identify byproducts which may result from the operation.
- (3), (5), (8), (11), (13) and (15) -- Mark (X) this column if any of the proceeding entries are confidential business information (CBI).

Letter of Activity	# of Workers Exposed	CBI	Duration of Exposure		CBI	Protective Equip./Engineering Controls/Physical Form	% new substance	% in Formulation	CBI
(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(6)	(7)	(8)

Release Number	Amount of New Substance Released		CBI	Media of Release & Control Technology	CBI
(9)	(10a)	(10b)	(11)	(12)	(13)

Mark (X) this box if the data continues on the next page. ☐

(14) Byproducts:		(15) CBI	<input type="checkbox"/>
Enter Attachment filename for Part II, Section B.			<input type="checkbox"/>

**OPTIONAL POLLUTION PREVENTION INFORMATION**

To claim information in the following section as confidential, bracket (e.g. {}) the specific information that you claim as confidential.

In this section you may provide information not reported elsewhere in this form regarding your efforts to reduce or minimize potential risks associated with activities surrounding manufacturing, processing, use and disposal of the PMN substance. Please include new information pertinent to pollution prevention, including source reduction, recycling activities and safer processes or products available due to the new chemical substance. Source reduction includes the reduction in the amount or toxicity of chemical wastes by technological modification, process and procedure modification, product reformulation, and/or raw materials substitution. Recycling refers to the reclamation of useful chemical components from wastes that would otherwise be treated or released as air emissions or water discharges, or land disposal. Quantitative or qualitative descriptions of pollution prevention, source reduction and recycling should emphasize potential risk reduction in addition to compliance with existing regulatory requirements. The EPA is interested in the information to assess overall net reductions in toxicity or environmental releases and exposures, not the shifting of risks to other media (e.g., air to water) or nonenvironmental areas (e.g., occupational or consumer exposure). To the extent known, information about the technology being replaced will assist EPA in its relative risk determination. In addition, information on the relative cost or performance characteristics of the PMN substance to potential alternatives may be provided.

Describe the expected net benefits, such as

- (1) an overall reduction in risk to human health or the environment;
- (2) a reduction in the generation of waste materials through recycling, source reduction or other means;
- (3) a reduction in the use of hazardous starting materials, reagents, or feedstocks;
- (4) a reduction in potential toxicity, human exposure and/or environmental release; or
- (5) the extent to which the new chemical substance may be a substitute for an existing substance that poses a greater overall risk to human health or the environment.

Information provided in this section will be taken into consideration during the review of this substance. See PMN Instructions Manual and Pollution Prevention Guidance manual for guidance and examples.

Manufacturing facility has an impermeable epoxied floor to prevent release to ground/groundwater from indoors. All exits to the outside have passive flood diking to prevent interior spills from being released outside the building. The external loading dock has isolation valves to segregate storm drains from the environment during the movement of material outdoors. Storage and mixing vessels have immediate secondary containment around the vessels. All of these measures help to reduce potential human and environmental exposure to the NCS, resulting in an overall reduction in risk to human health and the environment.

Enter Attachment filename for Pollution Prevention Page 11.





Attach continuation sheets for sections of the form, test data and other data (including physical/chemical properties and structure/activity information), and optional information after this page. Clearly identify the attachment and the section of the form to which it relates, if appropriate. Number consecutively the pages of any paper attachments. In the Number of Pages column below, enter the inclusive page numbers of each attachment for paper submissions or enter the total number of pages for each attachment for electronic submissions. Electronic attachments can be identified by filename.

Mark (X) the "Confidential" box next to any attachment name or filename you claim as confidential. Read the Instructions Manual for guidance on how to claim any information in an attachment as confidential. You must include with the sanitized copy of the notice form a sanitized version of any attachment in which you claim information as confidential.

Mark (X) this box if the data continues on the next page.

--	--



PMN2016P13

SANITIZED SUBMISSION

PMN Page 13

PHYSICAL AND CHEMICAL PROPERTIES WORKSHEET

The information on this page refers to chemical number(s): ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6

To assist EPA's review of physical and chemical properties data, please complete the following worksheet for data you provide and include it in the notice. Identify the property measured, the value of the property, the units in which the property is measured (as necessary), and whether or not the property is claimed as confidential. Give the attachment number (found on page 12) in column (b). The physical state of the neat substance should be provided. These measured properties should be for the neat (100% pure) chemical substance. Properties that are measured for mixtures or formulations should be so noted (% PMN substance in ____). You are not required to submit this worksheet; however, EPA strongly recommends that you do so, as it will simplify the review and ensure that confidential information is properly protected. You should submit this worksheet as a supplement to your submission of test data. This worksheet is not a substitute for submission of test data.

Property (a)	Unit	Mark X if Provided	Attachment Number (b)	Value (c)			Measured or Estimate (M or E)	CBI Mark (X) (d)
Physical state of neat substance		<input checked="" type="checkbox"/>		(solid) <input checked="" type="checkbox"/>	(liquid) <input type="checkbox"/>	(gas) <input type="checkbox"/>	Measured	
Vapor Pressure @ Temperature	°C	<input type="checkbox"/>				Torr		
Density/relative density		<input type="checkbox"/>				g/cm3		
Solubility								
@ Temperature	°C	<input type="checkbox"/>				g/L		
Solvent								
Solubility in Water @ Temperature	°C	<input type="checkbox"/>				g/L		
Melting Temperature		<input checked="" type="checkbox"/>		96		°C	Estimate	
Boiling / Sublimation temperature @	Torr	<input type="checkbox"/>				°C		
Spectra		<input checked="" type="checkbox"/>		Infrared spectroscopy (IR.pdf attachment)			Measured	
Dissociation constant		<input type="checkbox"/>						
Octanol / water partition coefficient		<input type="checkbox"/>						
Henry's Law constant		<input type="checkbox"/>						
Volatilization from water		<input type="checkbox"/>						
Volatilization from soil		<input type="checkbox"/>						
pH@ concentration		<input type="checkbox"/>						
Flammability		<input type="checkbox"/>						
Explodability		<input type="checkbox"/>						
Adsorption / Coefficient		<input type="checkbox"/>						
Particle Size Distribution		<input type="checkbox"/>						
Other – Specify		<input type="checkbox"/>						



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ClientServices

Phone: 800-631-1884, 614-447-3870

Fax: 614-447-3747

E-mail: answers@cas.org

Web: www.cas.org/products/other-cas-products/client-services

September 4, 2013

Soulbrain MI
ATTN: Ms. Kristen Meyers
47050 5 Mile Road
Northville, MI 48168

Dear Ms. Meyers:

Thank you for your Client Services Registry Lookup Request of September 04, 2013. The results of your order number 356482, are as follows:

CAS Registry Number Requests

- Please see enclosed for the CAS Registry record for 1072-53-3.

Please review the enclosed results to ensure that they accurately represent the substance data you have requested.

The processing cost of this order will be charged to your MasterCard.

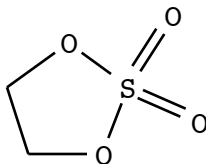
Thank you for the opportunity to provide this service. If you have any questions during your review, please do not hesitate to contact me.

Sincerely,

Jennifer Moore
CAS Client Services

Enclosures

ANSWER 1 REGISTRY COPYRIGHT 2013 ACS on STN
 RN 1072-53-3 REGISTRY REGISTRY COPYRIGHT 2013 ACS on STN
 RN 1072-53-3 REGISTRY
 ED Entered STN: 16 Nov 1984
 CN 1,3,2-Dioxathiolane, 2,2-dioxide (CA INDEX NAME)
 OTHER CA INDEX NAMES:
 CN Ethylene glycol, cyclic sulfate (8CI)
 CN Ethylene sulfate (((CH2O)2SO2)) (6CI, 7CI)
 OTHER NAMES:
 CN 1,2-Ethylene sulfate
 CN Ethylene sulfate
 CN NSC 526594
 MF C2 H4 O4 S
 CI COM
 SR CA
 LC STN Files: BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS, CHEMLIST,
 IFIALL, REAXYSFILE*, RTECS*, SPECINFO, TOXCENTER, USPAT2,
 USPATFULL, USPATOLD
 (*File contains numerically searchable property data)



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

217 REFERENCES IN FILE CA (1907 TO DATE)
 8 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
 217 REFERENCES IN FILE CAPLUS (1907 TO DATE)



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Inventory Status Information from the CAS Registry File

Enclosed are CAS prints from the CAS Registry File which is available on STN International. These prints provide inventory status information for the **Toxic Substances Control Act Chemical Substances Inventory** (TSCA), the **Canadian Domestic Substances List** (DSL) and **Non-domestic Substances List** (NDSL), and the **European Inventory of Existing Commercial Chemical Substances** (EINECS). This document explains where to find inventory status flags (the acronyms TSCA, DSL, NDSL, and EINECS) if they are present on your prints, and what the presence, or absence, of these flags indicates.

Locating Inventory Flags

Examine your prints for an "LC" field. If any inventory status flags have been associated with the CAS Registry Number (CASRN) for this substance, they will be listed in the "LC" field under the heading "Other Sources". If either the "LC" field or the heading "Other Sources" are not present, then no inventory flags have been associated with this CAS Registry Number.

Offline Print Example

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2013 ACS on STN
RN ***72953-48-1*** REGISTRY
CN Benzonitrile, 2-chloro-4-[2-(2-methyl-1H-indol-3-yl)diazenyl]- (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Benzonitrile, 2-chloro-4-(2-methylindol-3-ylazo)- (6CI)
CN Benzonitrile, 2-chloro-4-[(2-methyl-1H-indol-3-yl)azo]- (9CI)
MF C16 H11 Cl N4
LC STN Files: CA, CAPLUS, CHEMLIST, USPATOLD
Other Sources: DSL**, EINECS**, TSCA**
(*Enter CHEMLIST File for up-to-date regulatory information)

↑
LC Field

↑ ↑ ↑
Inventory Flags

(Continued on other side)



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What does the presence, or absence, of an inventory flag indicate?

TSCA Flag

The presence of the TSCA flag indicates this CASRN was listed on the TSCA inventory as of January 4, 2013. If this flag is not present, then this CASRN was not listed on the nonconfidential portion of the TSCA inventory as of January 4, 2013.

Since TSCA is a dynamic inventory, it is not possible for us to certify whether substances are currently on the TSCA inventory. For this information, a bonafide intent to manufacture should be filed with the U.S. EPA

Information concerning the filing of a Bona Fide Intent to Manufacture may be obtained from www.epa.gov/oppt/newchemicals/pubs/findsubs.htm or by calling the TSCA Assistance Information Service (TSCA Hotline) at (202) 554-1404.

DSL and NDSL Flags

The presence of the DSL or NDSL flag indicates this CASRN was listed on the corresponding inventory as of May, 1998. If these flags are not present, then this CASRN was not listed on the nonconfidential portion of these inventories as of May, 1998.

Since the DSL and NDSL are dynamic inventories, it is not possible for us to certify whether substances are currently on these inventories.

Further information regarding these inventories may be obtained by contacting Environment Canada at 800-567-1999 (calls within Canada) or 819-953-7156 (calls outside of Canada).

EINECS Flag

The presence of the EINECS flag indicates this CASRN is listed on the EINECS inventory. If this flag is not present, then this CASRN is not listed on the EINECS inventory. EINECS is a static inventory.



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Substance Information Display Field Codes

AF	Alternate Molecular Formula
AR	Alternate CAS Registry Number
CCI	Component Class Identifier
CCN	Condensed Chemical Name (all names)
CI	Class Identifier
CIL	Component Isotope at Unknown Location
CMF	Component Molecular Formula
CN	Chemical Name (up to 50)
COMP	Composition
CRN	Component CAS Registry Number
DEF	Definition
DR	Deleted CAS Registry Number
ED	Entry Date
ENTE	Editor Note
FCN	All Chemical Names
FS	File Segment
IL	Isotope at Unknown Location
IN	CA Index Name
LC	CAS Registry Number Locator
MF	Molecular Formula
PCT	Polymer Class Term
PR	Preferred CAS Registry Number
REF	Number of References in CPlus and CA files and the number of references in CA for the non-specific derivatives
RN	CAS Registry Number
RR	Replacing Registry Number
RSD	Ring System Data
SCN	Short Chemical Name (IN and OTHER NAMES)
SR	Source of Registration
SRSD	Short Ring System Data
STR	Structure Diagram with stereo bond and R/S/Z/E designations, if available
STF	Flat Structure Diagram (no stereo bonds)
STS	Structure Diagram with stereo bonds, if available

Biosequence Field Codes

NA	Nucleic Acid
NTE	Note
PNTE	Patent Annotation
SEQ	Sequence (1-letter amino acid codes)
SEQ3	Sequence (3-letter amino acid codes)
SQL	Sequence Length

Property Field Codes

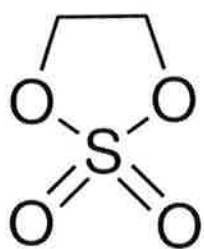
BCF	Bioconcentration Factor
BP	Boiling Point
DEN	Density

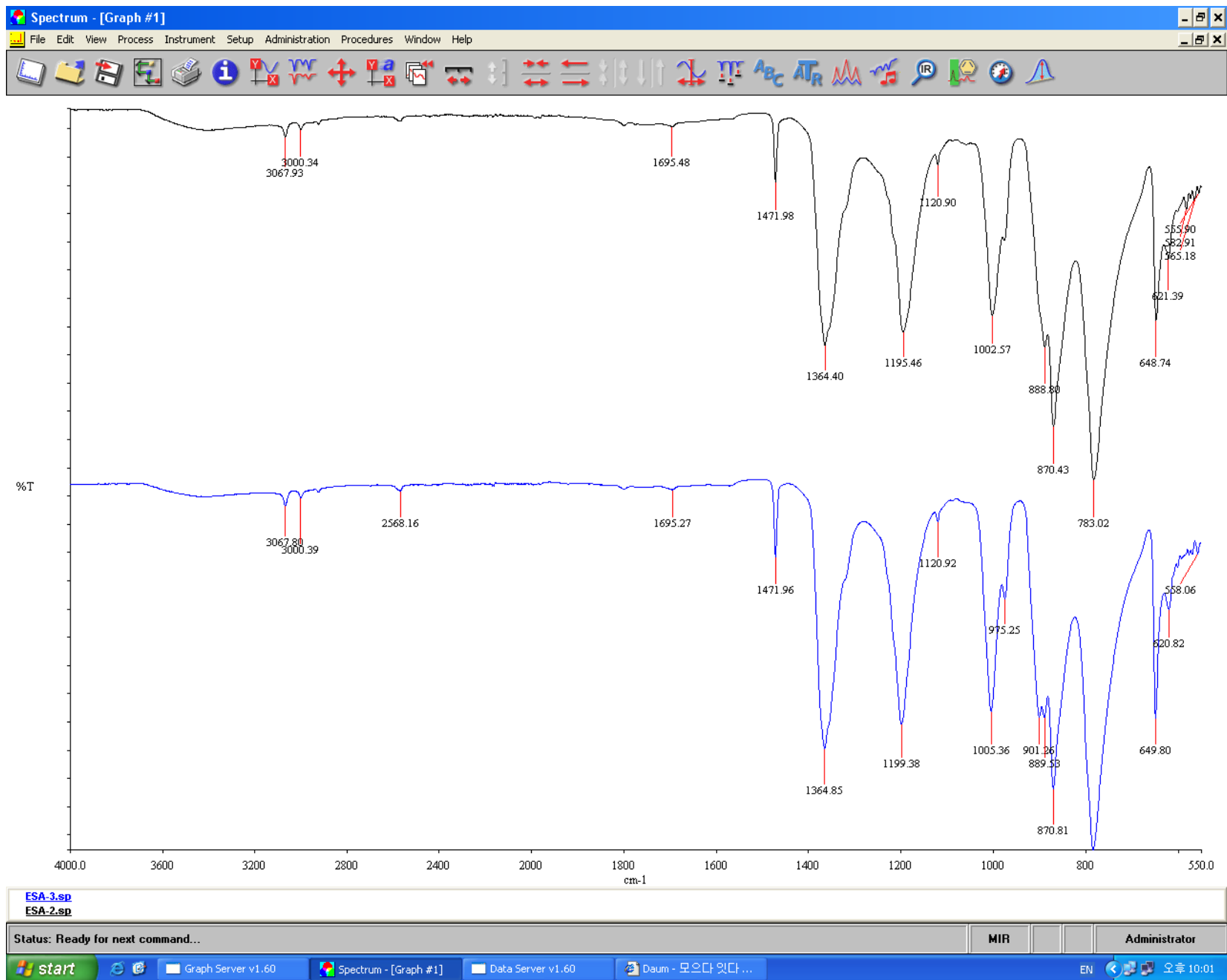


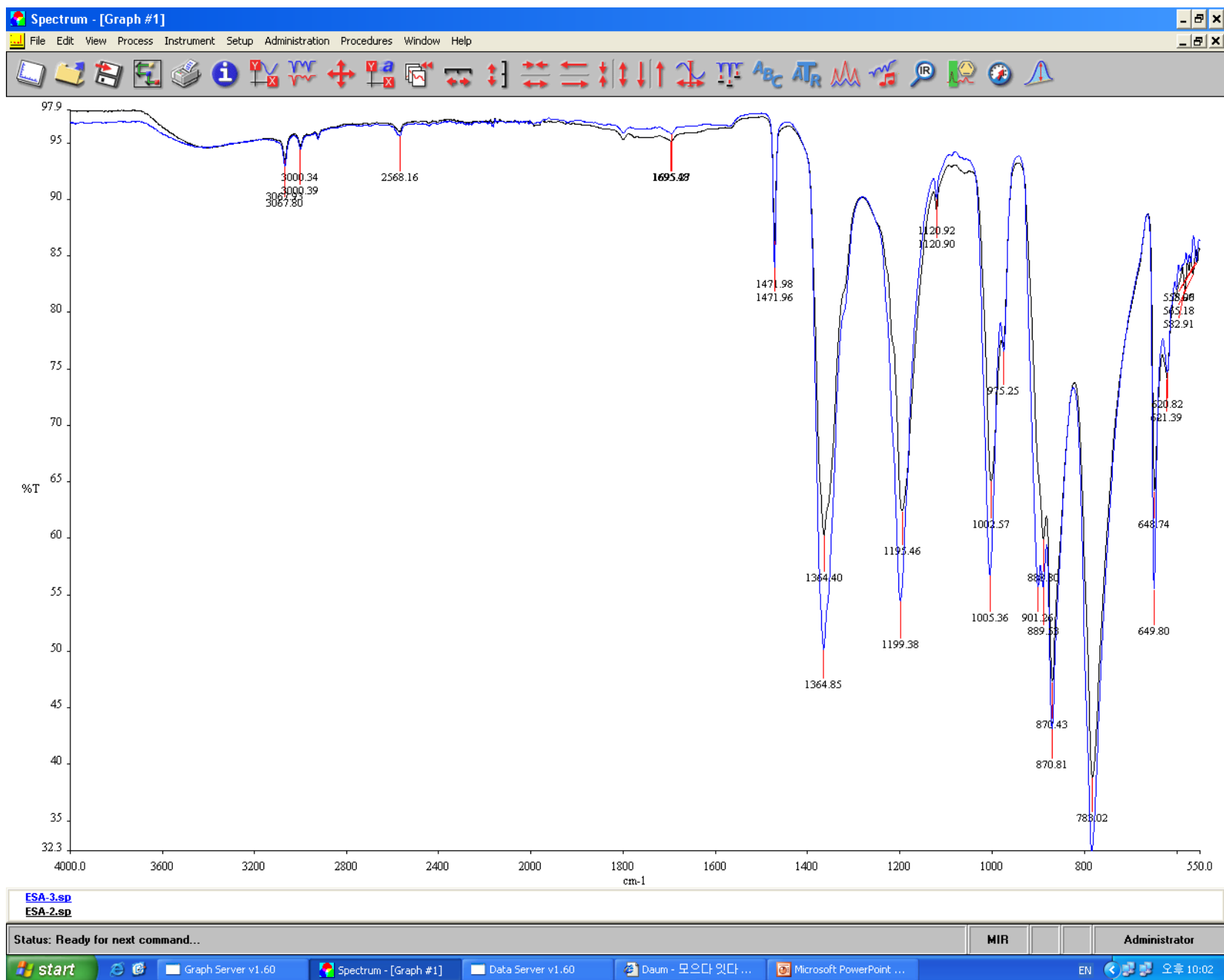
ECND	Electric Conductivity
ECON	Electric Conductance
ERES	Electric Resistance
EREST	Electric Resistivity
ETAG (TAGS)	Experimental Property Tags
FP	Flash Point
FRB	Freely Rotable Bonds
HAC	H acceptors
HD	H donors
HDAS	H Donor/Acceptor Sum
HVAP	Enthalpy of Vaporization
ISLB.MASS	Mass Intrinsic Solubility
ISLB.MOL	Intrinsic Molar Solubility
KOC	Organic Carbon Adsorption Coefficient
LD50	Median Lethal Dose
LOGD	logD
LOGP	logP
MM	Magnetic Moment
MP	Melting Point
MVOL	Molar Volume
MW	Molecular Weight
ORP	Optical Rotatory Power
PKA	pKa
PRFA (FA)	Property Fields Available
PSA	Polar Surface Area
RI	Refractive Index
SLB.MASS	Mass Solubility
SLB.MOL	Molar Solubility
SPEC	Spectra
SPEC.C13NMR	Carbon-13 NMR Spectra
SPEC.H1NMR	Proton NMR Spectra
SPEC.IR	IR Absorption Spectra
SPEC.MASS	Mass Spectra
SPEC.PROTONNMR	Proton NMR Spectra
TG	Glass Transition Temperature
TS	Tensile Strength
VP	Vapor Pressure

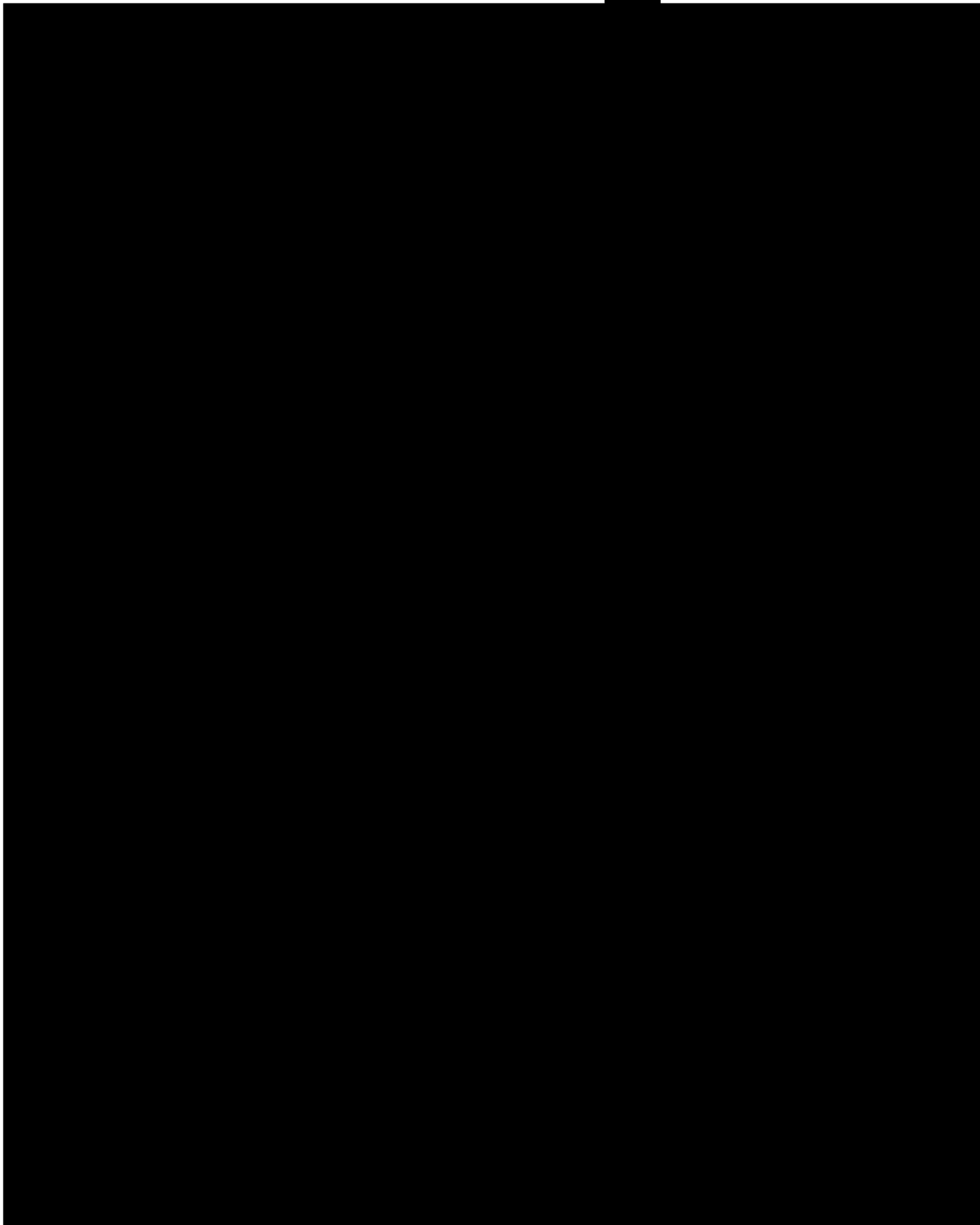
CAPLUS Super Roles and Document Type Display Field codes

DT.CA	CAPLUS document type
RL	CAPLUS super roles
RL.NP	CAPLUS super roles from non-patents
RL.P	CAPLUS super roles from patents
RLD (RL.D)	CAPLUS super roles for non-specific derivatives
RLD. NP	CAPLUS super roles for non-specific derivatives from non-patents
RLD.P	CAPLUS super roles for non-specific derivatives from patents
RLS	CAPLUS super roles for the specific substance and its non-specific derivatives









Submitter Controlled Operations: Electrolyte Formulation Process Description

[REDACTED]

[REDACTED]

[REDACTED]



MATERIAL SAFETY DATA SHEET

Date of issue: 2013-04-24

Version: 3.0

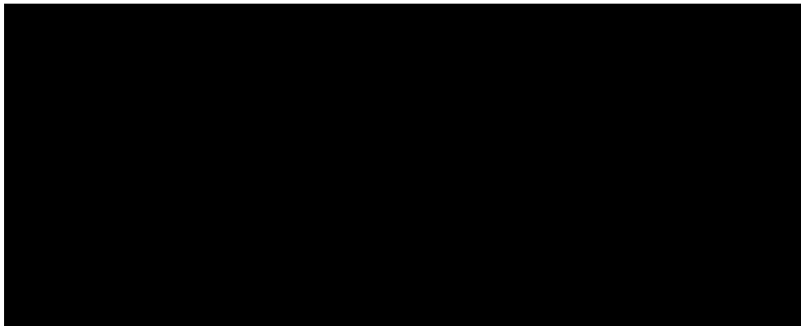
1. IDENTIFICATION

A. Product name : ESA

B. Recommended use and restriction on use

- General use : Electrolyte stabilizer
- Restriction on use : Not available

C. Manufacturer / Supplier / Distributor information



2. HAZARD IDENTIFICATION

A. GHS Classification

- Not available

B. GHS label elements

- ☐ Hazard symbols



- ☐ Signal words

- Danger

- Hazard statements
 - H302 Harmful if swallowed
 - H314 Causes severe skin burns and eye damage
 - H317 May cause an allergic skin reaction
 - H341 Suspected of causing genetic defects
 - Precautionary statements
 - 1) Prevention
 - P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 - P264 Wash hands thoroughly after handling.
 - P270 Do not eat, drink or smoke when using this product.
 - P280 Wear protective gloves/protective clothing/eye protection/face protection.
 - 2) Response
 - P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 - P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 - P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 - P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 - P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
 - 3) Storage
 - P405 Store locked up.
 - 4) Disposal
 - P501 Dispose of contents/container in accordance with local/regional/national/international regulation
- C. Other hazards which do not result in classification : (NFPA Classification)**
- NFPA grade (0 ~ 4 level)
 - Health : -, Flammability : -, Reactivity : -

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	1,3,2-Dioxathiolane 2,2-dioxide
Trade names and Synonyms	ESA
CAS No.	1072-53-3
Content(%)	99.5% min

4. FIRST AID MEASURES

A. Eye contact

- Do not rub your eyes.
- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.
- Get medical attention immediately.

B. Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
- Laundering enough contaminated clothing before reuse.
- Get medical attention immediately.
- Go to the hospital immediately if symptoms (flare, irritate) occur.
- Prevent the spread of the skin.
- Wash thoroughly after handling.

C. Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.
- Take specific treatment if needed.
- Get medical attention immediately.

D. Ingestion contact

- About whether I should induce vomiting Take the advice of a doctor.
- Rinse your mouth with water immediately.
- Get medical attention immediately.

E. Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
 - If exposed or concerned, get medical attention/advice.
-

5. FIREFIGHTING MEASURES

A. Suitable (Unsuitable) extinguishing media

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray
- Avoid use of water jet for extinguishing

B. Specific hazards arising from the chemical

- Not available

C. Special protective actions for firefighters

- Keep unauthorized personnel out.
 - Notify your local fire station and inform the location of the fire and characteristics hazard.
 - Using a unattended and water devices in case of large fire and leave alone to burn if you do not imperative.
 - Avoid inhalation of materials or combustion by-products.
 - Do not access if the tank on fire.
-

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, protective equipment and emergency procedures

- Ventilate closed spaces before entering.
- Must work against the wind, let the upwind people to evacuate.
- Remove all sources of ignition.
- Handling the damaged containers or spilled material after wearing protective equipment.
- Avoid skin contact and inhalation.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

B. Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

C. Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
 - Notification to central government, local government. When emissions at least of the standard amount
 - Dispose of waste in accordance with local regulation.
 - Appropriate container for disposal of spilled material collected.
 - Small liquid state spills: Appropriate container for disposal of spilled material collected.
 - For disposal of spilled material in appropriate containers collected and clear surface.
-

7. HANDLING AND STORAGE

A. Precautions for safe handling

- Wash thoroughly after handling.
- Avoid contact with incompatible materials.
- Operators should wear antistatic footwear and clothing.
- Contaminated work clothing should not be allowed out of the workplace.

B. Conditions for safe storage, including any incompatibilities

- Check regularly for leaks.
- Do not use damaged containers.
- Do not apply direct heat.
- Save applicable laws and regulations.
- Keep in the original container.
- Collected them in sealed containers.
- Do not eat, drink or smoke when using this product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. Exposure limits

- ☐ Exposure limits in Korea - Not available
- ☐ ACGIH TLV - Not available
- ☐ Biological limit values - Not applicable

B. Engineering controls

- A system of local and/or general exhaust is recommended to keep employee exposures above the Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. The use of local exhaust ventilation is recommended to control emissions near the source.

C. Individual protection measures, such as personal protective equipment

- ☐ Respiratory protection
 - Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
 - Respiratory protection is ranked in order from minimum to maximum.
 - Consider warning properties before use.
 - Dust, mist, fume-purifying respiratory protection
 - Any air-purifying respirator with a canister filter of high efficiency
 - Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying)
 - Self-contained breathing apparatus with a canister filter of high efficiency
 - For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
 - ☐ Eye protection
 - Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
 - Provide an emergency eye wash station and quick drench shower in the immediate work area.
 - ☐ Hand protection
 - Wear appropriate glove.
 - ☐ Skin protection
 - Wear appropriate clothing.
-

9. PHYSICAL AND CHEMICAL PROPERTIES

A. Appearance

- Appearance : powder
- Color : Colorless

B. Odor : Not available

C. Odor threshold : Not available

D. pH : Not available

E. Melting point/Freezing point : Not available

F. Initial Boiling Point/Boiling Ranges : Not available

G. Flash point : Not available

H. Evaporation rate : Not available

I. Flammability(solid, gas) : Not available

J. Upper/Lower Flammability or explosive limits : Not available

K. Vapour pressure : Not available

L. Solubility : Not available

M. Vapour density : Not available

N. Specific gravity(Relative density) : Not available

O. Partition coefficient of n-octanol/water : Not available

P. Autoignition temperature : Not available

Q. Decomposition temperature : Not available

R. Viscosity : Not available

S. Molecular weight : 124.12

10. STABILITY AND REACTIVITY

A. Chemical Stability

- This material is stable under recommended storage and handling conditions.

B. Conditions to avoid

- Avoid contact with incompatible materials and condition.

C. Incompatible materials

- Not available

D. Hazardous decomposition products

- Not available
-

11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

- ☐ (Respiratory tracts) - Not available
- ☐ (Oral) - Harmful if swallowed
- ☐ (Eye-Skin)
 - Causes severe skin burns and eye damage
 - May cause an allergic skin reaction

B. Delayed and immediate effects and also chronic effects from short and long term exposure

- ☐ Acute toxicity
 - * Oral - Not available
 - * Dermal - Not available
 - * Inhalation - Not available
 - ☐ Skin corrosion/irritation
 - Not available
 - ☐ Serious eye damage/irritation
 - Not available
 - ☐ Respiratory sensitization
 - Not available
 - ☐ Skin sensitization
 - Not available
 - ☐ Carcinogenicity
 - * Other - Not available
 - * IARC - Not available
 - * OSHA - Not available
 - * ACGIH - Not available
 - * NTP - Not available
 - * EU CLP - Not available
 - ☐ Germ cell mutagenicity - Not available
 - ☐ Reproductive toxicity - Not available
 - ☐ STOT-single exposure - Not available
 - ☐ STOT-repeated exposure - Not available
 - ☐ Aspiration hazard - Not available
 - ☐ 노동부고시
 - * MOL Announcement - Not available
 - * 생식세포 변이원성_노동부고시 - Not available
 - * 생식독성_노동부고시 - Not available
-

12. ECOLOGICAL INFORMATION

A. Ecotoxicity

- ☐ Fish
 - Not available
- ☐ Crustaceans
 - Not available
- ☐ Algae
 - Not available

B. Persistence and degradability

- ☐ Persistence
 - Not available
- ☐ Degradability
 - Not available

C. Bioaccumulative potential

- ☐ Bioaccumulative potential
 - Not available
- ☐ Biodegradation
 - Not available

D. Mobility in soil

- Not available

E. Other adverse effects

- Not available
-

13. DISPOSAL CONSIDERATIONS

A. Disposal methods

- Since more than two kinds of designaed waste is mixed, it is difficult to treat seperatly, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

B. Special precautions for disposal

- The user of this product must disposal by oneself or entrust to waste disposer or person who other's waste recycle and dispose, person who establish and operate waste disposal facilities.
 - Dispose of waste in accordance with all applicable laws and regulations.
-

14. TRANSPORT INFORMATION

A. UN No. (IMDG)

- Not available

B. Proper shipping name

- Not available

C. Hazard Class

- Not available

D. IMDG Packing group

- Not available

E. Marine pollutant

- Not applicable

F. Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
 - Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
 - EmS FIRE SCHEDULE : Not available
 - EmS SPILLAGE SCHEDULE : Not available
-

15. REGULATORY INFORMATION

A. Regulations under ISHL in Korea

- ☐ Chemical needs monitoring workplace exposure limit
 - Not applicable
- ☐ Chemical specified the exposure limit
 - Not applicable
- ☐ Hazardous Substances Requiring Management
 - Not applicable
- ☐ Special health examination substance
 - Not applicable

B. Regulations under TCCA in Korea

- ☐ Poisonous substances
 - Not applicable
- ☐ Toxic Release Inventory(TRI) Chemicals
 - Not applicable
- ☐ Accident Precaution Chemicals
 - Not applicable
- ☐ Restricted substance -
- ☐ Restricted substance -

C. Dangerous goods Safety Management Law in Korea

- Not applicable

D. Waste Management Law in Korea

- This product is classified as industrial waste under The Presidential decree of Waste Management Law, Table 1.

E. National and/or international regulatory information

- ☐ POPs Management Law
 - Not applicable
- ☐ Information of EU Classification
 - * Classification - Not applicable
 - * Risk Phrases - Not applicable
 - * Safety Phrase - Not applicable
- ☐ U.S. Federal regulations
 - * OSHA PROCESS SAFETY (29CFR1910.119) - Not applicable
 - * CERCLA Section 103 (40CFR302.4) - Not applicable
 - * EPCRA Section 302 (40CFR355.30) - Not applicable
 - * EPCRA Section 304 (40CFR355.40) - Not applicable
 - * EPCRA Section 313 (40CFR372.65) - Not applicable
- ☐ Rotterdam Convention listed ingredients
 - Not applicable
- ☐ Stockholm Convention listed ingredients
 - Not applicable
- ☐ Montreal Protocol listed ingredients
 - Not applicable

16. OTHER INFORMATION

A. Reference

- The information contained herein is believed to be accurate. It is provided independently of any sale of the product for purpose of hazard communication. It is not intended to constitute performance information concerning the product. No express warranty, or implied warranty of merchantability or fitness for a particular purpose is made with respect to the product or the information contained herein.
- This Safety Data Sheet was compiled with data and information from the following sources: KOSHA, NITE, ESIS, NLM, SIDS, IPCS

B. Issue date

- 2015-11-15

C. Revision number and Last date revised

- Not applicable

D. Other

- Not available

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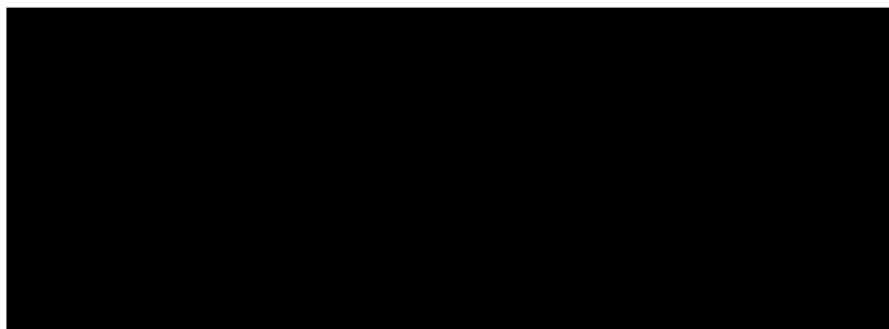
1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

A. PRODUCT NAME : ESA

B. RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE

: This product can be used solely for research development

C. MANUFACTURER/SUPPLIER/DISTRIBUTOR INFORMATION



2. HAZARDS IDENTIFICATION

A. HAZARD CLASSIFICATION

: Not a dangerous substance according to GHS.

: This substance is not classified as dangerous according to Directive 67/548/EEC.

B. GHS LABEL ELEMENTS, INCLUDING PRECAUTIONARY STATEMENTS

PICTOGRAMS : N/A

SIGNAL WORD : N/A

HAZARD STATEMENTS

: N/A

PRECAUTIONARY STATEMENTS

Prevention : Wear self contained breathing apparatus for fire fighting if necessary.

In case of skin contact, wash off with soap and plenty of water.

Response : In case of eye contact, flush eyes with water as a precaution.

If swallowed, never give anything by mouth to an unconscious person. Rinse mouth with water.

Storage : Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
Recommended storage temperature: 2 - 8 °C

Disposal : Offer surplus and non-recyclable solutions to a licensed disposal company.

C. OTHER HAZARDS WHICH DO NOT RESULT IN CLASSIFICATION (e.g. Dust explosion hazards)

: None

3. COMPOSITION / INFORMATION ON INGREDIENTS

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<u>Chemical name / Synonym</u>	<u>CAS No. or ID*</u>	<u>Content (w%)</u>
1,3,2-Dioxathiolane 2,2-dioxide	1072-53-3	>99%

ID : EC No. and/or EINECS (European Inventory of Existing Commercial Chemical Substances).

4. FIRST AID MEASURES

- A. EYE CONTACT : Flush eyes with water as a precaution.
- B. SKIN CONTACT : Wash off with soap and plenty of water.
- C. INHALATION : If breathed in, move person into fresh air.
If not breathing, give artificial respiration.
- D. INGESTION : Never give anything by mouth to an unconscious person.
Rinse mouth with water.
- E. MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE OR DELAYED
: The most important known symptoms and effects are described in the labelling
(see section 2) and/or in section 11
- F. INDICATION OF IMMEDIATE MEDICAL ATTENTION AND NOTES FOR PHYSICIAN
: No data available

5. FIRE FIGHTING MEASURES

- A. SUITABLE (AND UNSUITABLE) EXTINGUISHING MEDIA
Suitable Extinguishing Media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable Extinguishing Media : No data available
- B. SPECIFIC HAZARDS ARISING FROM THE CHEMICAL
: Carbon oxides, Sulphur oxides
- C. SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS
: Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

- A. NECESSARY MEASURES AND PROTECTIVE GEAR TO PROTECT HUMANS
: Avoid dust formation. Avoid breathing vapours, mist or gas.
: For personal protection see section 8.
- B. NECESSARY MEASURES TO PROTECT ENVIRONMENT
: Do not let product enter drains.
- C. METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP
: Sweep up and shovel. Keep in suitable, closed containers for disposal.

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7. HANDLING AND STORAGE

A. PRECAUTIONS FOR SAFE HANDLING

- Provide appropriate exhaust ventilation at places where dust is formed.
- : Normal measures for preventive fire protection.
- For precautions see section 2.

B. CONDITIONS FOR SAFE STORAGE (INCLUDING ANY INCOMPATIBILITIES)

- Store in cool place. Keep container tightly closed in a dry and well-ventilated place.
- : Recommended storage temperature: 2 - 8 °C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

A. OCCUPATIONAL EXPOSURE LIMIT(S), BIOLOGICAL EXPOSURE STANDARD

- Korea. OELs: Not regulated
- ACGIH; ACGIH Threshold Limit Values: Not regulated
- ACGIH; BEL: Not regulated

B. APPROPRIATE ENGINEERING CONTROLS

- : General industrial hygiene practice.

C. INDIVIDUAL PROTECTION MEASURES

- Respiratory protection : Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
- Eye/face protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
- Skin protection : Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.
Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
- Body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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9. PHYSICAL AND CHEMICAL PROPERTIES

- A. APPEARANCE (PHYSICAL STATE, COLOUR etc.)
: Solid
- B. ODOR : No data available
- C. ODOR THRESHOLD : No data available
- D. pH : No data available
- E. MELTING POINT/FREEZING POINT : 95 - 97 °C - lit.
- F. INITIAL BOILING POINT AND BOILING RANGE : No data available
- G. FLASH POINT : No data available
- H. EVAPORATION RATE : No data available
- I. FLAMMABILITY (SOLID, GAS) : No data available
- J. UPPER/LOWER FLAMMABILITY OR EXPLOSIVE LIMITS
: No data available
- K. VAPOR PRESSURE : No data available
- L. SOLUBILITY : No data available
- M. VAPOR DENSITY : No data available
- N. RELATIVE DENSITY : No data available
- O. PARTITION COEFFICIENT OF n-OCTANOL/WATER
: No data available
- P. AUTO-IGNITION TEMPERATURE : No data available
- Q. DECOMPOSITION TEMPERATURE : No data available
- R. VISCOSITY : No data available
- S. MOLECULAR WEIGHT : No data available

10. STABILITY AND REACTIVITY

- A. CHEMICAL STABILITY
: Stable under recommended storage conditions.
- B. POSSIBILITY OF HAZARDOUS REACTIONS
: No data available
- C. CONDITIONS TO AVOID (STATIC DISCHARGE, SHOCK, VIBRATION etc.)
: No data available
- D. SUBSTANCES TO AVOID
: Strong oxidizing agents
- E. HAZARDOUS DECOMPOSITION PRODUCTS
: Other decomposition products - no data available
In the event of fire: see section 5

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11. TOXICOLOGICAL INFORMATION

A. Information on the likely routes of exposure

Inhalation : No data available
 Ingestion : No data available
 Eye/Skin : No data available

B. Delayed and immediate effects and also chronic effects from short and long term exposure

Acute toxicity (possible route of exposure)

Oral (LD50) : No data available
 Skin (LD50) : No data available
 Inhalation (LC50) : No data available

Skin corrosion/irritation

: No data available

Serious eye damage/irritation

: No data available

Respiratory sensitization

: No data available

Skin sensitization

: No data available

Carcinogenicity

Carcinogenicity - mouse - Intraperitoneal
 Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors
 at site or application.
 IARC: No component of this product present at levels greater than or equal to
 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

Germ cell mutagenicity

mouse
 S. typhimurium
 Host-mediated assay
 Histidine reversion (Ames)

Reproductive toxicity

: No data available

STOST-single exposure

: No data available

STOST-repeated exposure

: No data available

Aspiration hazard

: RTECS: Not available

12. ECOLOGICAL INFORMATION

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No aquatic toxicity data available for the mixture.

A. Aquatic/terrestrial ecology toxicity

Fish (LC50) : No data available
Daphnia (EC50) : No data available
Algae (EC50) : No data available

B. Persistence and degradability

Persistence : No data available
Degradability : No data available

C. Bioaccumulative potential

Biodegradation : No data available
Bioaccumulation : No data available

D. Mobility in soil : No data available

E. Other hazardous effects

: No data available

13. DISPOSAL CONSIDERATIONS

A. DISPOSAL METHODS

: Offer surplus and non-recyclable solutions to a licensed disposal company.

B. PRECAUTIONS (INCLUDING DISPOSAL OF CONTAMINATED CONTAINER OR PACKAGE)

: Dispose of as unused product.

14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (BL). Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties, and mode of transportation.

A. UN NUMBER : -

B. UN PROPER SHIPPING NAME

ADR/RID: Not dangerous goods
: IMDG: Not dangerous goods
IATA: Not dangerous goods

C. HAZARD CLASS(ES)

: -

D. PACKING GROUP (IF APPLICABLE)

: -

E. MARINE POLLUTANT SUBSTANCES

: -

F. SPECIAL PRECAUTIONS FOR USER

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15. REGULATORY INFORMATION

EU. GHS Classification. CLP Reg. No 1272/2008 of 16 Dec 2008, Annex VI, Table 3.1, List of harmonized classification and labelling of hazardous substances, as amended by Reg.No 286/2011, 30 March 2011

Classification : Not a dangerous substance according to GHS.
This substance is not classified as dangerous according to Directive 67/548/EEC.

NOTE: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the Safety Data Sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

A. SOURCE OF DATA

Copyright 2013 Sigma-Aldrich Co. LLC.

B. THE DATE OF PREPARATION OF THE SDS : 1 Nov.2010

C. THE NUMBER OF TIMES REVISED AND THE DATE OF PREPARATION OF THE LATEST REVISION

Once

2nd (13/09/13) : Revised according to GHS.

3rd (15/11/20) : Revision 1.-C. MANUFACTURER/SUPPLIER/DISTRIBUTOR INFORMATION

D. OTHER INFORMATION

This product material safety data sheet provides health and safety information. The above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. [REDACTED] shall not be held liable for any damage resulting from handling or from contact with the above product. Each individual should make a determination as to the suitability of the information for their particular purpose(s). Various government agencies may have specific regulations regarding the transportation, handling, storage, use, or disposal of this product which may not be covered by this SDS. The user is responsible for full compliance.